standard manner, in optimal standard working conditions for its application (avoid excessive humidity and temperature working conditions for its application).

Example 2. Preparation of Gel-Coat in Moulds with Polyester-Based Resins which Require Acceleration in Order to be Cured. See FIG. **1**

[0055] Moulds must be placed in a suitable environment (clean, without volatile particles in the air), with a temperature and humidity suitable for work, and checking that the temperature of the initial gel-coat is between 18-25° C. before its use. The base resin must be homogenized and, when utilized, only the previously estimated amount must be used for each mould. In the event of different resin batches, all of them must be properly homogenized before their use, in order to avoid differences in their physical-chemical properties. For the resins that require the use of accelerators, before its use an accelerator must be added to the resin to achieve a 0.5-1.5% proportion. Subsequently, the catalyst will be carefully added. It must be reminded that excessive agitation may leave air in the composition and cause a lamination with micropores in the film of the cured gel-coat. Thus, homogenization must be meticulously carried out in order to avoid bubble appearance. Afterwards, an initial additivation of 1% of TiO_2 will be added to the base resin in the final weight of the mixture, additivated in powder with a granulometry lower than 20 nanometres of particle width. Afterwards, it will be additivated with Al_2O_3 in powder, also with a granulometry lower than 20 nanometres of particle width, in an amount of 5% of the final weight of the material. A perfect homogenization must be achieved through mechanical agitation no higher than 500 rpm for at least 15 minutes. Then, the gel-coat composition must be applied on the predefined mould in the previous steps in a standard manner, in optimal standard working conditions for its application (avoid excessive humidity and temperature working conditions for its application).

INDUSTRIAL APPLICATION OF THE INVENTION

[0056] The application of this type of materials at an industrial level can be found in numerous industrial sectors:

Transportation Industry.

[0057] One of the most relevant challenges faced by the twenty-first-century transportation industry is the development of materials environmentally sustainable but also functional and with affordable manufacturing costs. The use in large cities of vehicle bodies which have on their outside this new type of photocatalytic material as coating, which are in usual contact with visible light and atmospheric pollutant gases (NOx), allows to produce a chemical reaction on the surface of the vehicle body capable of decomposing such environmentally unfriendly organic compounds, indirectly contributing to reducing, as far as possible, atmospheric pollution as the vehicle passes by.

Maritime Transport Industry.

[0058] It has been proven that, on surfaces covered by an exterior gel-coat with these new types of materials, the growth of bacteria, algae and fungi is prevented on certain surfaces, as these materials have a biocidal effect partly thanks to the generation of hydroxyl radicals. Therefore, a direct application exists in using this new type of photocatalytic materials applied to the surface of new vessels, which will allow to reduce both the time and cost of cleaning work on vessels (especially on the hull, below and above the waterline) and the fuel costs by improving its incidence coefficient in water, as well as allowing to lengthen the lifespan of vessels by avoiding corrosion on the vessel surfaces.

Construction Industry.

[0059] In the construction of sustainable buildings, architects take into consideration amongst their parameters, with an increasing frequency, the possibility to have a lower impact on the environment. Through the use of external building surfaces made out of this new photocatalytic material, the building's external surroundings will be decontaminated through this type of photocatalytic reactions.

[0060] The term "mould" (see FIG. **1**) as used herein is understood as any device used to shape a gel-coat before the curing process.

[0061] The term "resin" as used herein is understood as any thermostable polymer that undergoes a cross-linking chemical reaction, thus increasing its hardness physical properties when mixed with a catalyzing agent.

[0062] The term "catalyst" as used herein is understood as any chemical substance which manages to increase the rate of a chemical reaction, and whose mass is modified during the aforementioned reaction.

[0063] The term "granulometry" as used herein is understood as any grading undergone by the materials, indicating in length units the maximum size that an aggregate particle of the measured material can have.

[0064] The term "accelerator" as used herein is understood as any chemical substance which manages to accelerate the rate of a chemical reaction, and whose mass is reduced during the aforementioned reaction.

[0065] The term "curing process" (see FIG. **1**) as used herein is understood as any polymerization process that has taken place, originating a cross-linking chemical reaction of the gel-coat chains due to the addition of a catalyzing agent and/or accelerator.

[0066] The new material and/or claimed methods herein can be performed and executed without due experimentation, in view of this description. It is evident that a person skilled in the art can introduce variations in the step sequence of the method described in the particular realizations section and in FIG. **1** herein, without deviating from the concept, spirit and scope of the invention. All of these similar modifications for those skilled in the art are considered within the spirit, scope and concept of the invention, as defined by the attached claims.

1. A new gel-coat additivated with titanium dioxide and alumina particles, wherein:

- Between 50 and 94% of the total weight of a synthetic cured resin which can be selected from the family of polyesters, the family of vinyl esters, the family of epoxy resins, or equivalent combinations of these.
- A chemical catalyst to cure this resin.
- Between 1 and 25% of the total weight of titanium dioxide (TiO_2 in its metastable anatase and rutile phases) with a granulometry lower than 20 nanometres.
- Between 5 and 25% of the total weight of aluminium oxide (Al_2O_3) in powder, also with a granulometry lower than 20 nanometres.